

ON THE GENERIC POSITION OF THE GROUPS OF SQUIRRELS  
 TYPIFIED BY "*SCIURUS*" *BERDMOREI* AND  
*PERNYI* RESPECTIVELY, WITH DESCRIPTIONS  
 OF SOME NEW ORIENTAL SPECIES.

BY

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In determining a long-nosed Formosan squirrel of the *pernyi* group I have had occasion to study the generic relationship of each of the different forms that have of late years been included in the genus *Funambulus*, and, as might be expected from Dr. Forsyth Major's descriptions of their teeth in his classical work on the subject,\* I find that several different groups should be recognized as distinct genera.

Already something has been done by other authors in this direction, and the genera *Rhinoscirus*, recognized for the species *laticaudatus* and its ally *tupaoides*, *Laria* for *insignis* (with which goes *hosei*), *Tamiops* for *maclellandi* and *Sciurotamias* for *dauidianus* (+ *conso-brinus*). In addition, I would suggest that generic rank should be accorded to the two following groups. I do not propose to describe them in great detail, as particulars about their skulls and teeth have already been published by Dr. Major.

*MENETES*, gen. nov.

Skull of the rounded, upwardly convex "*Xerus*" type, approximately of the same character as in *Laria* and the African *Funisciurus*.

Teeth more or less hypsodont, the valley between the transverse crests deeply excavated, so that the teeth soon wear into a characteristic horseshoe pattern. P<sup>3</sup> proportionally well developed and standing but little inward of the centre of the tooth-line.

*Range*.—Burma, Siam, and Malay Peninsula.

*Type*.—*Menetes berdmorei* (*Sciurus berdmorei*, Bly.).

*ZETIS*, gen. nov.

Frontal region comparatively flat, as in *Sciurus*, to which this genus would appear to be more nearly allied than to *Funambulus*. Muzzle very much elongated, the distance from the tip of the nasals to the point at which the premaxillo-maxillary suture mounts

\* P. Z. S. 1893, p. 189.

on to the upper surface of the skull more than the interorbital breadth; lateral profile lines gently sinuous, without sharp concavity at the point above mentioned or strong shoulder at the front end of the zygoma. Postorbital processes small.

Teeth brachyodont, with low ridges.  $P^3$  small in proportion to  $p^4$ .

*Range*.—S. China and Formosa, Himalayas, Burma, Malay Peninsula and Borneo.

*Type*.—*Zetis rufigenis* (*Sciurus rufigenis*, Blanf.)

Other species: *lokriah*, Hodgs., *pernyi*, M. Edw., *everetti*, Thos., *pyrrhomerus*, Thos., and the Formosan species described below.

Within the genus there is considerable variation in the development of the snout, *Z. pyrrhomerus* having the longest and *Z. lokriah* the shortest.

This has been long recognized as a natural group, but has been assigned, I now think wrongly, to *Funambulus*, as it would really seem to be a long-nosed ally of true *Sciurus*.

It would therefore have no close relationship to the other long-nosed Oriental form, *Rhinosciurus*, which seems to be a member of the Xerine series of genera, and has teeth remarkably like those of *Menetes*.

In order to assist other workers in the generic reference of the different species of Oriental squirrels I give the following table, which shows the prominent species, including those mentioned under *Sciurus* by Blanford, Hose, and Anderson, sorted according to the modern genera. But I have not attempted to enumerate all the more recently described species, as so many are mere variants of the prominent species included in the table.

Ratufa bicolor.	Sciurus caniceps.
—— gigantea.	—— castaneiventris.
—— indica.	—— chinensis.
—— macrourus.	—— concolor.
—— melanocephala.	—— erythræus.
—— nanogigas.	—— ferrugineus.
—— notabilis.	—— finlaysoni.
Sciurus alstoni.†	—— fraterculus.
—— atrodorsalis.	—— gordonii.
—— brookei.	—— griseimanus.

† *Sarasinorum*, Meyer, is probably a synonym of *alstoni*, Anderson.

Sciurus haringtoni.	Zetis everetti.
—— hippurus.	—— lokriah.
—— jentinki.	—— owstoni.
—— leucomus.	—— pernyi.
—— lokrioides.	—— pyrrhomerus.
—— lowii.	—— rufigenis.
—— melanogaster.	Funambulus layardi.
—— modestus.	—— palmarum
—— notatus.	—— pennanti.
—— phayrei.	—— sublineatus
—— philippinensis.	—— tristriatus.
—— prevostii.	Laria hosei.
—— pryeri.	—— insignis.
—— pygerythrus.	—— niobe.
—— quinquetriatus.	Sciurotamias davidianus.
—— rosenbergi.	Menetes berdmorei.
—— rubriventer.	Rhinosciurus laticaudatus
—— steerei.	Reithrosciurus macrotis
—— tenuis.	Nannosciurus concinus
Glyphotes simus.	—— exilis.
Tamiops maclellandi.	—— melanotis.
	—— whiteheadi.

The three following Oriental squirrels appear to be new :—

*Sciurus stevensi*, sp. n.

A squirrel like *S. atrodorsalis* when without the black dorsal patch, out with a blue-grey belly.

Size about as in *atrodorsalis*. General colour above almost exactly of the warm grizzled fulvous grey characteristic of the specimens of *atrodorsalis* in which the black on the back is not developed. Under surface and inner side of limbs bluish grey (approximately plumbeous of Ridgway), a colour not found among the many variations of *atrodorsalis*. Head concolorous with back or a little greyer. Ears short, their backs covered with rather long hairs, which are blackish in one specimen, grey in the other; a scarcely perceptible lighter postauricular spot. Hands and feet light grizzled blue-grey. Tail in a general way like back, darkening terminally, the hairs (except those at the extreme tip) ringed with buffy or fulvous and black, their ends with distinct white terminal or subterminal bands. A tuft at the extreme tip of the tail wholly black.

Skull much like that of *S. atrodorsalis*, but with more delicate muzzle, and less convex in the interior frontal region.

Dimensions of the type (measured in the skin):—

Head and body 230 mm. ; tail 190 ; hind foot (wet) 45; ear (wet) 17.

Skull : fronto-parietal suture to nasal tip 35·3 ; zygomatic breadth 30 ; nasals 15 × 6·9 ; interorbital breadth 17 ; intertemporal breadth 17 ; palatilar length 21 ; combined length of  $p^4$  and  $m^{1-3}$  8·5.

*Hab.*—Beni-chang, Abor-Miri Hills, northern frontier of Upper Assam. Alt. 4,000'.

*Type.*—Adult male. B.M. no. 7. 11. 26. 2. Collected 19th February, 1906, by Mr. H. Stevens.

This squirrel seems alone to resemble the non-black-backed examples of *S. atrodorsalis*, but that species is found in a very different area, far to the south of the present locality, and is distinguishable by its differently coloured belly. I have named the new form after its collector, Mr. Stevens, who is one of the very few people who have obtained any zoological specimens in the inaccessible and dangerous region to the north of Assam.

*Sciurus pryeri inquinatus*, subsp. n.

Similar to true *pryeri* in all important respects except that the under surface and inner sides of the limbs, instead of white, are uniformly pale rufous (rather darker than "vinaceous-cinnamon" of Ridgway). The dorsal colour is rather more vivid than in *pryeri*, owing to the reduction of the black rings on the hairs. Lips and chin grey, interramia and throat rather more yellowish than the rufous belly.

Dimensions of the type (taken on skin):—

Head and body 267 mm. ; tail 238 ; hind foot (wet) 58 ; ear (wet) 17.

Skull : interorbital breadth 18 ; palatilar length 25 ; length of upper tooth-series, exclusive of  $p^3$ , 9·6.

*Hab.*—Lawas River, western border of British North Borneo.

*Type.*—B.M. no. 1. 8. 25. 1. Collected and presented by the late J. S. Jameson, Esq.

In spite of the very conspicuous difference involved by the change of the belly-colour from white to rufous, I only make this a subspecies, as one of the Museum examples of *pryeri* has a slight fulvous

blush on its under surface, thus showing a tendency to intergradation in this character.

*Zetis owstoni*, sp. n.

Most nearly allied to *Z. lokriah*, but larger and darker coloured.

General colour above uniform dark finely grizzled olivaceous, the head, body, and limbs being all of much the same tone, though the tips of the digits are blackish. Under surface broadly and conspicuously washed with yellow or orange, the bases of the hairs slaty; in the anal region this colour passes into a ferruginous patch, as in several of the other species. Back of ears with dull whitish hairs, not forming a prominent patch. Tail-hairs for the greater part of their length finely ringed with dull buffy or orange, their ends with a broad subterminal band of black and a white tip.

Skull with a very long muzzle, not equalling that of *Z. pyrromerus* in this respect, but coming next after it, the only other squirrel with a longer snout being *Rhinosciurus laticaudatus*.

Dimensions of the type (measured on the skin):—

Head and body 235 mm.; tail 165; hind foot (wet) 47; ear (wet) 23.

Skull: greatest length 54; greatest breadth 30; nasals  $18.3 \times 6.1$ ; interorbital breadth 14.5; intertemporal breadth 16.7; palatilar length 23.5; diastema 14; combined length of  $p^4$  and  $m^{1-3}$  8.6.

*Hab.*—Mt. Arizan, Central Formosa.

*Type.*—Old female. Original number 63. Collected 6th December, 1906, by native hunters for Mr. Alan Owston, of Yokohama.

This distinct squirrel forms an interesting addition to the small genus *Zetis*, and I have much pleasure in naming it in honour of Mr. Alan Owston, to whom so much of our knowledge of the Japanese and Chinese faunas is due.

It would seem, as with certain other Formosan animals, to be more allied to the Himalayan than to the Chinese members of the group, as may be seen by the following rough synopsis of the species of *Zetis*:—

A. Tail dully coloured, grizzled.

a. Belly-hairs yellow or orange terminally.

a<sup>2</sup>. Colour grizzled brown. Nose less elongated..... *lokriah*.

b<sup>2</sup>. Colour dark olivaceous. Nose much elongated... *owstoni*.

- b.* Belly hairs whitish terminally.
- c*<sup>2</sup>. Tail-hairs broadly white-tipped. A rufous patch  
on base of tail near anus..... *pernyi*.
- d*<sup>2</sup>. Tail-hairs dully orange-tipped. No rufous anal  
patch..... *everetti*.
- B.** Tail rich ferruginous along its centre below.
- c.* Cheeks ferruginous. Outer side of hips grizzled brown. *rufigenis*.
- d.* Cheeks not ferruginous. A brilliant rufous patch  
outside hips..... *pyrrhomerus*.
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